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Alexander B. Grannis  
Commissioner

October 20, 2009

Mark Sielski  
Tetra Tech EC., Inc.  
2000 The American Road  
Morris Plains, NJ 07950

Re: Magna Metals Site (Site No. 360003)  
Draft Feasibility Study Report dated August 2009

Dear Mr. Sielski:

The NYS Departments of Environmental Conservation and Health have received and reviewed the above-mentioned document and have the several comments.

1. The certification language in the draft FS is not adequate. Please revise the certification language as follows. *"I certify that this Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with Department guidance and that all activities were performed in full accordance with the Department approved work plan and any Department approved modifications."*

**Section 2 - Remedial Action Objectives**

2. Table 2-4. List all relevant chemical contaminants of concern (including metals in groundwater) and SCOs for all of the contaminants of concern. List the SCOs based on protection of ecological resources.
3. Please make sure all acronyms are spelled out at some point in the document (e.g., PRG).
4. For most of the figures in the FS it is unclear how the concentration isopleths were created. It would be appropriate to use linear interpolation between data points absent other data. Please include drawings for all contaminants of concern in the soil. A larger scale for the soil figures may also be appropriate.
5. Section 2. The FS needs to discuss the remedial alternatives for the site in terms of "cleanup approaches." If the site is to be unrestricted, all soils exceeding the unrestricted SCOs must be remediated. If the site is to be restricted, all soils above bedrock and source areas must be remediated to the lowest of the applicable SCOs including protection of human health, groundwater protection, and/or ecological resources protection. So the discussion should be geared to address these approaches. Provide figures that show what soils would need to be removed to achieve unrestricted and provide figures that would show what soils need to be removed to achieve an acceptable restricted use. In section 4, discuss the alternatives and combinations of the alternatives in terms of what cleanup approach would be achieved.
6. Figure 2-5. Make sure all the figures reflect the available data. For example, during more recent sampling, monitoring well MW-2 had TCE above groundwater standards. This is not reflected in Figure 2-5. Include a map with the known extent of groundwater contamination; Figures 2-4, 2-5, 2-6, and 4-3 do not show the full extent.

7. Figures 2-7 and 2-8. Please include a color scheme on these figures that is consistent with concentration throughout the entire figure. In other words, it is confusing when a red shaded area on one part of the figure means copper concentrations >107ppm but in another part of the same drawing the red shaded area means concentrations >415ppm. Please revise these drawings.
8. Table 2-3 Location Specific SCGs and TBCs, page 2-12. Please include 6NYCRR Part 663 in this table. New York State freshwater wetlands regulations will apply to any work conducted within the wetland or adjacent areas.
9. Section 2.3.2 PRGs, page 2-13 and Table 2-7. Please explain the phrase "surface soils with wetland-like characteristics".

Residential Use Soil Cleanup Objectives (SCOs) are not appropriate PRGs for sediments or soils associated with the unnamed tributary, Furnace Brook, or the wetland. Instead, sediment PRGs should be based upon ecologically-derived values or sediment guidance values. For upland soils within ecological resource areas, PRGs should be based on SCOs for the protection of ecological resources. Include these ecologically based SCOs in Table 2-7.

The ecological PRGs proposed in Table 2-7 are based upon an approach that was questioned by the Department during the remedial investigation. For example, data were often not comparable between sample locations because either toxicity tests or benthic community assessments were not performed. Also, NOECs were derived using less sensitive methods such as acute rather than chronic toxicity tests. This approach reduced the ability to determine actual effects of site-related contamination on ecological receptors. As a result, the PRGs proposed in Table 2-7 may not be protective of fish and wildlife resources that have been impacted by site contaminants. These values should be replaced by Lowest Effect Levels found in the New York State sediment guidance.

### **Section 3 - Identification and Screening of Technologies and Selection of Process Options**

10. Where residential properties are adjacent to a site where commercial or industrial soil cleanup objectives are proposed, the development of remedial alternatives shall address, as set forth at 6NYCCR375-6.7(c), the migration of contaminants in soil which could impact these residential properties. Please address this in the FS.
11. The FS mentions deed restrictions as part of an institutional control. The Department prefers the use of environmental easements. Please change the language in the FS to reflect this.
12. Section 3.1.1.5.1 and Table 3-1. In this text of this section Tetra Tech (TT) uses the term "soil vapor extraction" (SVE) but then goes on to describe a subslab soil depressurization system (SSDS) or vapor intrusion mitigation system. Please do not use the term SVE if that is not what is really being discussed; it is confusing to the reader. Also, the SSDS system is discussed in this section in the context of soil remediation, but then in Section 4 is discussed as part of the evaluation of groundwater remedies. An SSDS system should be discussed as part of the groundwater remedy, not that the SSDS will remediate the groundwater but it will mitigate the effects of the contaminated groundwater.
13. Page 3-15. Section 3.1.2.3.4 states that pumping would yield excessive amounts of groundwater, yet section 3.1.2.4.1 on the same page says the site has low flow conditions and would not yield much groundwater. This seems to be a contradiction. Please clarify.
14. Section 3.1.3.3 Containment, page. 3-18 and Table 3-3. Capping should not be retained as a

remedial option for stream and wetland sediments. Capping would alter the bathymetry and hydrology of these systems and is generally not acceptable under Parts 608 and 663.

15. Section 3.2 (and Table 3.4) state that process options that are not selected are still technically feasible and may be substituted for the selected process option during remedial design. Please be aware that three categories are considered when evaluating a change in remedy: scope, performance and cost. Significant new information relating to one or more of these categories is needed to justify a change to a remedy. The degree of change (minor, significant, or fundamental) determines the procedures to be followed to document and approve a change to a remedy.

**Minor Change** - Minor changes are made to a remedy by documenting the basis for the change. Formal amendment of the decision document is not needed.

**Significant Change** - If the change is significant but not fundamental, DEC will issue an Explanation of Significant Difference (ESD), which is a notice that a change to the remedy has been made. Formal amendment of the decision document is not necessary because DEC is not reconsidering the overall remedy. The ESD is placed in the document repository and a fact sheet is issued to the site mailing list. A formal comment period or public meeting is not required. However, if there is significant public interest, a public meeting and comment period or availability session may be conducted. A concurrence letter from the New York State Department of Health (NYSDOH) is required before an ESD can be approved.

**Fundamental Change** Fundamental changes to remedies require the same process and level of effort, in terms of citizen participation, documentation, and approvals, as the development of the original remedy. A ROD amendment, which is similar to a proposed remedial action plan (PRAP) and must be prepared and provided to the public for review and comment.

16. Please include post-remedial monitoring of the surface water in the wetland in this section.

#### **Section 4 - Detailed Analysis of Remedial Alternatives**

17. In several alternatives analysis TT mentions a reevaluation of the risks every five years as part of determining if the remedy is effective in the long term. The Department does not complete five year reviews any more. If a site management plan is required, the effectiveness of the remedy and/or the condition of the site must be certified on a periodic basis. Typically the first periodic review is done a year after the completion of the remedy. The frequency beyond that is determined by several factors, including the complexity of the institutional and engineering controls that are in place.
18. The description of each of the alternatives is very vague. The identified alternatives should be developed and defined to a level of detail such that each alternative is clearly defined with respect to (1) size and configuration of process options (2) time for remediation (3) spatial requirements (4) options for disposal (5) substantive technical permit requirements (6) limitations or other factors necessary to evaluate the alternatives and (7) beneficial and/or adverse impacts on fish and wildlife resources.
19. Specify the cleanup goals for each alternative. For example, for Alternative S-3, specify what soil cleanup objectives will be met. Specify what cleanup "approach" will be used (see comment 5).
20. Section 4.2.1.3. Alternative S-3 (source removal and hotspot removal, building demolition) It is not clear how this alternative will eliminate the entire groundwater plume; some of the plume is in the bedrock, the groundwater plume and soil contamination do not completely overlap each other, and the extent of groundwater has not been fully determined. Please discuss further. Please ensure that

subsequent parts of the FS don't imply that alternatives S-3 and S-4 will completely eliminate the groundwater issues. It would be appropriate however, to discuss the technical difficulties with remediating a groundwater plume in bedrock.

The text states that the subsurface soils beneath the demolished buildings would be based on visual or analytical data. The removal action would be based on analytical data, not visual. Figure 4-1 states that the removal would be based on visual; please correct this.

If soil that is excavated is to be returned to an excavation on site, the soil must meet the appropriate cleanup criteria for all compounds in Part 375, not just the contaminants of concern.

21. Section 4.2.1.4. Why does this alternative only mention three metals of concern instead of the six in Table 2-4? Please include all contaminants of concern and the cleanup objectives.

22. Section 4.2.2.2. The text discusses "compliance monitoring." Please describe what this means. It also mentions a groundwater monitoring network would be used for a "point of compliance system." Please describe in more detail what this is. The second paragraph on page 4-12 mentions natural attenuation. This phrase should be included in the name of the alternative since it is a key part of it.

The text states that Figure 4.3 summarizes Alternative GW-2, however, it only shows alternative GW-2 in conjunction with Alternative S-3. It doesn't show GW-2 in conjunction with S-4. Also, the extent of groundwater contamination shown in this figure does not appear to be accurate. Please revise the figure to more accurately show the known groundwater concentrations.

The bottom of page 4-11 references Figures 2-6 and 2-7. The latter reference appears to be incorrect. Please correct.

Page 4-12 states that if elevated subslab vapor levels are present beneath the slab after the SSDS installation, the SSDS will be expanded. Typically the effectiveness of the SSDS is determined by measuring the depressurization field that is developed by the system, not the presence of contaminated vapors beneath the slab. Please correct in this section and Section 4.2.2.4.

Page 4-13. As stated in Comment 20, it does not appear that groundwater contamination will be fully addressed with this remedy as the full extent of groundwater contamination is unknown.

The installation of an SSDS is not an effective remedy to remove VOCs from soil vapor over a groundwater plume. Please remove this statement. (page 4-13). Also remove this statement from Section 4.2.2.4.

23. Section 4.2.2.3 is missing.

24. Section 4.2.2.4. Page 4-15 states that multiple rounds of injections will be needed for air sparging. Typically air sparging is a continuous process, not a batch process. Please clarify.

25. Section 4.2.3 – Detailed Analysis of Sediment Remedial Alternatives – The description of stream and wetland restoration should be expanded under alternatives SD-3A through SD-3C. Please see Comment 18 above.

There should be an alternative that examines removal of all sediments about the LEL concentrations and removal of all sediments to pre-release conditions. TT should use a single background number.

Generally, a cleanup number based on background would be determined using a statistical method (e.g., 75<sup>th</sup> percentile or 95% UCL of the mean) based upon a minimum of 25 background samples away from site contamination or any local sources. With the limited data we have at the MM site, a measure of central tendency (such as the mean) would probably provide the most meaningful single background value. These alternatives should also include removing nearby soils to ecologically based SCOs.

26. Figures 4-4B and 4-4C – The boundaries of remediation on Figures 4-4B and 4-4C will need to be confirmed (and Figures 2-7 and 2-8). Sediment contamination has not been sufficiently delineated to background or LEL concentrations. For example, no samples were collected to the north of SD-21 and SD-24, which are both within the boundaries of alternatives SD-3B and SD-3C. Therefore, pre-design sampling will be required under either of these alternatives. Please include this in the text of the FS.

The boundaries provided on Figure 4-4B should be adjusted. The area to the north that contains SD-12, 13, 29, and 31 needs to be excluded as it is upgradient of the source area (leach pits) and metals concentrations are generally below background and/or sediment LELs.

27. Section 4.2.3.6. Why is there a two foot limit on the depth of sediment removal? This limit must be justified. We don't have data below two feet so TT should justify this depth restriction.
28. Sections 4 and 5 imply that Alternative G-3 (in-situ treatment of groundwater) will quickly and completely remediate the groundwater. It is not realistic to expect that groundwater alternative G-3 will result in a complete reduction of contaminant levels to SCGs quickly. Please provide in the FS a more realistic discussion of capabilities of groundwater cleanup.

#### **Section 5 - Comparative Analysis**

29. Section 5. In general, the comparison is qualitative and not at all quantitative. Where possible, more specific information, including quantitative info, should be included to compare the various alternatives.
30. Section 5.1.4. The text states that Alternative S-3 would results in a similar mass reduction to Alternative S-4. Please provide calculations that show the mass reduction for each alternative.
31. Section 5.2.4. The differences in the amount of time it will take to achieve groundwater standards for the three groundwater alternatives are very significant. This section should try to quantify those differences to give the lay reader a better understanding of the time frames involved.
32. Section 5.3 doesn't differentiate between the sediment alternative SD-3A, SD-3B, and SD-3C. A discussion of the differences should be included in the analysis.

#### **Section 6 - Selection of Preferred Alternative**

33. Section 6. The language should not say that a certain alternative "is selected." In the FS you may propose a certain alternative but ultimately the Department will choose the remedy.
34. Section 6.0, page 6-1. Sediment alternative SD-3A has been recommended in this section, however, it is based upon PRGs that are not well-supported or are derived from residential rather than ecological criteria (see Section 2.3.2 comment above). Sediments with metals concentrations in excess of Severe Effect Level guidance values would remain within unremediated portions of the wetland under this alternative. As a result, alternative SD-3A is not a protective remedy. Of the sediment alternatives presented in this Feasibility Study, alternative SD-3B is most supported by available data.

Please revise the draft report in accordance with these comments. As stated in the consent order resubmit the report within 30 days of receipt of this letter. If you have any questions or comments or wish to discuss these issues further, please call or email me.

Sincerely,

*Sally W.W. Dewes*

Sally W.W. Dewes, P.E.  
Project Manager

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